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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,577	02/01/2001	Akira Oosawa	Q61225	5559

7590 01/21/2004

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WASHINGTON, DC 20037-3213

EXAMINER

AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 01/21/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/774,577

Applicant(s)

OOSAWA, AKIRA

Examiner

Seyed Azarian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-5, 7-9, 11-13, 15-17, 19-21, 23-24, 32, 34-36, 38-40, 42-44, 46-48, 50-52, 54, 55, 63 and 64, are rejected under 35 U.S.C. 102(b) as being anticipated by Kano et al (U.S. patent 5,359,513).

Regarding claim 1, Kano discloses an inter-image operation method comprising the steps of carrying out an inter-image operation between two or more sets of base image data each representing a distinct base image of an identical object to obtain processed image data therefrom (column 2, lines 29-49, providing changes between a pair of temporally sequential medical images and detecting abnormal regions where the two images are matched with each other);

recording history data on past inter-image operations (Fig. 11A, column 12, lines 44-59, as shown digital image input device supplies the same digitizes image to each of image memories 110 and 120).

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Regarding claim 3, Kano disclose an inter-image operation method according to Claim 1, wherein the history data on the past inter-image operations are attached to the processed image data obtained through the inter-image operation (column 4, lines 57-68, a pair of first and second images (step 10, 20), image registration and then subtraction).

Regarding claim 4, Kano disclose an inter-image operation method according to Claim 1, wherein the history data on the past inter-image operations are attached to each of said two or more sets of the base image data used for calculating the processed image data (column 5, lines 34-47 refer to determine and calculation of shift mapping).

Regarding claim 5, Kano disclose an inter-image operation method according to Claim 1, wherein the history data on the past inter-image operations include information identifying the base images each represented by one of said two or more sets of the base image data used for calculating the processed image data (column 5, lines 1-22, to obtain improve of image registration between the two images).

Regarding claim 9, Kano disclose an inter-image operation method according to Claim 1, wherein the history data on the past inter-image operations include such data indicating whether or not the processed image data on a certain processed image have already been obtained (column 5, lines 24-33, matching between each corresponding pair of ROIs and comparing the result and column 8, lines 59-66, best match location are selected to perform a fine –search for local matching in the second step for accuracy).

Regarding claim 13, Kano disclose an inter-image operation method according to Claim 9, wherein the history data on the past inter-image operations include information on recording sites of the processed image data obtained in the past, and wherein a desired set of the processed

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image data stored at the recording site thereof is fetched and outputted instead of conducting the inter-image operation to recalculate the desired set of the processed image data, if it was found by referring to the history data that the desired set of processed image data had already been obtained (column 12, lines 55-68, matching is performed in calculator 150, which output the result to generator 160 and calculation to memory 170, where the result stored in memory 190).

Regarding claim 63, Kano disclose an image display method comprising the steps of displaying an image on a prescribed image display, said image being a processed image represented by processed image data obtained by carrying out an inter-image operation between two or more sets of base image data each representing a distinct base image of an identical object, and displaying information. Identifying the two or more base images each represented by one of said two or more sets of the base image data together with the processed image (column 14, lines 17-28, refer to displaying).

Regarding claims 7, 11, 15, 19, 23, 34, 38, 42, 46, 50 and 54, it recites similar limitation as claim 3 is similarly analyzed.

Regarding claims 8, 12, 16, 20, 24, 35, 39, 43, 47, 51 and 55, it recites similar limitation as claim 4 is similarly analyzed.

Regarding claims 17, 40 and 48, it recites similar limitation as claim 9 is similarly analyzed.

Regarding claims 21, 44 and 52, it recites similar limitation as claim 13 is similarly analyzed.

Regarding claim 32, it recites similar limitation as claim 1 is similarly analyzed.

Regarding claim 36, it recites similar limitation as claim 5 is similarly analyzed.

Regarding claim 64, it recites similar limitation as claim 63 is similarly analyzed.

Claim Rejections - 35 USC § 103

3. Following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 6, 10, 14, 18, 22, 25-31, 33, 37, 41, 45, 49, 53 and 56-62, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano et al (U.S. patent 5,359,513) as applied to claims 1, 3-5, 7-9, 11-13, 15-17, 19-21, 23-24, 32, 34-36, 38-40, 42-44, 46-48, 50-52, 54, 55, 63, 64 and further in view of Lemelson et al (U.S. patent 5,878,746).

Regarding claim 2, Kano fails to disclose, "the past inter-image operations are recorded in a designated recording medium". On the other hand Lemelson in the same field of X-ray system teaches thermography scan which stored in memory and may be compared to past scans as stored in the archival memory (or designated recording). The result of such analysis are recorded in data memory and the past and present scan result may also be displayed (column 3, lines 3-19).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to modify Kano invention according to the teaching of Lemelson

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because it provides system for automatically making recommendations for performing and evaluation diagnostic comparison in order to make a recommendations for further testing techniques that determined based on the differences between the location of the object, which can easily be implements in diagnostic device such as X-ray machine desirable image and improve accuracy.

Regarding claim 25, Kano disclose an inter-image operation method according to any one of Claims 1-24, wherein the inter-image operation includes a subtraction operation on a pixel-by-pixel basis between said two or more sets of the base image data (Fig. 1, steps 10 and 20. Digital images 1 and 2 are obtained at different points in time, and column 12, lines 29-43, subtraction image can be created by subtracting the pixel values).

Regarding claim 26, Kano disclose an inter-image operation method according to any one of Claims 1-24, wherein each of said two or more sets of the base image data is a set of data representing an original image (Fig. 14A-14D, column 13, lines 48-55, using two temporally sequential original images).

Regarding claim 28, Kano disclose an inter-image operation method according to any one of Claims 1-24, wherein the base images each represented by one of said two or more sets of the base image data are taken at different points in time (Fig. 1, steps 10 and 20. Digital Image 1 and 2 are obtained at different points in time, and column 15, lines 64-68, determining differences between first and second images during time interval).

Regarding claim 30, Kano disclose an inter-image operation method according to any one of claims 1-24, wherein each of said two or more sets of the base image data represents a

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radiation image for medical use (Fig. 14A, column 4, lines 25-26, shows a radiographic image of a patient's chest X-ray (refer to radiation image)).

Regarding claims 6, 10, 14, 18, 22, 33, 37, 41, 45, 49 and 53, it recites similar limitation as claim 2 is similarly analyzed.

Regarding claim 27, it recites similar limitation as claims 25 and 26 are similarly analyzed.

Regarding claim 29, it recites similar limitation as claims 25 and 28 are similarly analyzed.

Regarding claim 31, it recites similar limitation as claims 25 and 30 are similarly analyzed.

Regarding claim 56, it recites similar limitation as claim 25 is similarly analyzed.

Regarding claim 57, it recites similar limitation as claim 26 is similarly analyzed.

Regarding claim 58, it recites similar limitation as claims 25 and 26 are similarly analyzed.

Regarding claim 59, it recites similar limitation as claim 28 is similarly analyzed.

Regarding claim 60, it recites similar limitation as claims 25 and 28 are similarly analyzed.

Regarding claim 61, it recites similar limitation as claim 30 is similarly analyzed.

Regarding claim 62, it recites similar limitation as claims 25 and 30 are similarly analyzed.

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Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (5,882,330) to Lemelson is cited for drugs and method for treating diseases.

U.S. patent (5,151,795) to Adachi is cited for method for compressing and extending image signals.

U.S. patent (4,558,462) to Horiba et al is cited for apparatus for correcting image distortions automatically by inter-image processing.

U.S. patent (6,424,996) to Killcommons et al is cited for medical network system and method for transfer of information.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (703) 308-5246.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, D.C. 20231

Or faxed to:

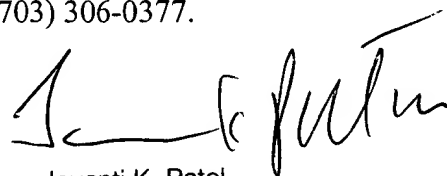
(703) 872-9306, ("draft" or "informal" communications should be clearly labeled to expedite delivery to examiner).

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Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to
T.C. customer service office whose telephone number is (703) 306-0377.

Seyed Azarian
Patent Examiner
Group Art Unit 2625
January 12, 2003


Jayanti K. Patel
Primary Examiner

